

105  
(60) CL  
filling said one of said regions in said map with said  
one of said textures; and  
overlying said image on a background.

---

34. (AMENDED TWICE) Apparatus comprising:

a microprocessor;

a memory coupled to the microprocessor, the memory  
being configured to cause the microprocessor to:

compress a digital image having at least three textures  
to reduce the amount of storage space required for holding it  
prior to a time when the image is to be displayed, by:

Db  
a) generating a bitmap representing only boundaries  
separating regions in said image, said boundaries comprising  
pixels of said image, at least one of said regions comprising  
pixels of said image;

b) generating a pointer for each of said regions, each  
of said pointers associating its respective region with one of  
said textures; and

c) storing the bitmap and the pointers in a memory  
coupled to the microprocessor.

---

#### Remarks

Applicant's responses are set forth below, in each  
case following a quotation (indented and in bold face small type)  
of the examiner's comment to which it relates. Applicant thanks  
the examiner for the telephone interview of January 12, 1998.

### Disclosure

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Applicant has amended the title.

3. Claims 1, 2, 5-13, 15, 19-21, and 34 are rejected under 35 U.S.C. 103 as being unpatentable over Gentile, 5,539,865.

For claim 1, a method of compressing a digital image with at least three textures to reduce the amount of storage required for holding it prior to display is provided by Gentile in at least the abstract and Fig. 2. Generating a bitmap representing boundaries separating regions comprising pixels is provided by Gentile in at least Fig. 2 and the abstract, where rasterization provides a bitmap practically by definition, so that rasterization obviously provides for a bitmap. Generating a pointer for each region, where the pointers associate regions with textures is provided by Gentile in at least Fig. 2, and in at least c. 2, lines 50-66 and in the in the first full paragraph in c. 7. Storing the bitmap and the pointers for later display is provided in at least c. 1, lines 10-15, c. 2, lines 10-20, c. 3, lines 35-55, and c. 4, lines 44-49.

For claim 2, boundaries and regions of different pixel values is provided in at least Fig. 2, where boundaries are explicitly illustrated, and boundaries are also explicitly provided in at least the paragraph bridging cols. 2-3, and pixels are provided in at least c. 1, lines 33-50, c. 4, lines 50-54, and the paragraph bridging cols. 10-11.

For claims 5 and 6, Gentile provides for pointers including a location and a single location in at least in the first full paragraph in c. 7, where the pointers point to region elements in a raster format, which is well known to have a row-column location arrangement, since a bitmap contains at least location.

For claim 7, each region comprising a single texture is provided by Gentile in at least Fig. 2.

For claim 8, boundaries comprising a first texture is also provided by Gentile in at least Fig. 2.

For claim 9, generating a bitmap is known as rasterization, and is provided by Gentile in at least the paragraph bridging cols. 2 and 3, and where conversion into a second texture is illustrated in at least Fig. 2.

For claim 10, finding a location in each region which is not the second texture for generating pointers is provided by Gentile in at least the in the first full paragraph in c. 7, and in Fig. 2, where pointers are provided for several textures.

For claim 11, a bitmap that has one bit per pixel is at least obviously, if not inherently, provided by the rasterization of

Gentile in at least c. 2, lines 57-67, and pixels are provided as noted above for at least claims 1 and 2.

For claims 12 and 13, encoding the bitmap with run-length-encoding is provided by Gentile in at least c. 5, lines 20-23.

For claim 15, see the rejection of at least claim 1 above.

For claim 19, see the rejection of at least claim 11.

For claims 20 and 21, see the rejection of at least claims 12 and 13.

For claim 34, see the rejection of at least claim 1, and Figs. 1 and 10 of Gentile.

Claims 1, 15, and 34 require "a bitmap representing only boundaries separating regions in said image, said boundaries comprising pixels of said image". Claims 1 and 34 require "a pointer for each of said regions, each of said pointers associating its respective region with one of said textures", while claim 15 requires "pointers, each associating its respective region with a texture." One of the advantages of the claimed invention is that an image can be stored as a bitmap of boundaries and pointers to textures, where each region within the boundaries of the bitmap has one pointer to one texture. Applicant has amended the claims merely to clarify the claimed subject matter. As discussed with the examiner, the claims as now set forth do not preclude a portion of a region being used as part (or all) of a boundary in a bitmap.

Gentile does not show or even hint at the claimed invention. Gentile describes a method for optimizing the compression of an image by choosing a variety of different compression schemes for different portions of an image. The image, as shown in Figure 2,

is typically decomposed into horizontal "regions" that are rasterized into pixels. See Col. 6:2-8. "Rasterized data is created for one region at a time and stored uncompressed in RAM 26. This data is then compressed and re-stored in RAM 26 until needed." Col. 6:26-31. The rasterization referred to be Gentile is therefore the rasterization of an entire image region (i.e., each horizontal band 60, 61, etc.), not the formation of just a bitmap of boundaries. Also, different areas of each horizontal region are compressed differently (e.g., JPEG compression is used for image areas, while LZW encoding is used for text, etc.) See Col. 5:11-25. Gentile does not describe or even hint at converting the image data into (a) a bitmap of boundary pixels and (b) pointers to textures, where each region within a pixel boundary is mapped by one pointer to one texture.

Claims 2, 5-13, and 19-21 are allowable for at least the reasons of the claims from which they depend. Applicant therefore asks that claims 1, 2, 5-13, 15, 19-21, and 34 be allowed.

**2. Claims 3, 4, 14, 16-18, 22-27, and 31-33 are rejected under 35 U.S.C. 103 as being unpatentable over Gentile, 5,539,865, as applied to claims 1, 2, 5-13, 15, 19-21, and 34 above, and further in view of Sakuragi et al., 5,382,100, or Baisuck et al., 5,440,720.**

**For claim 3, . . . .**

Claim 14 requires "generating a bitmap, the bitmap representing only boundary pixels of a first one of said textures separating said regions in said image", and claims 22, 31, and 33 require "providing [or generating] a bitmap representing

boundaries separating regions [in said image], said boundaries comprising pixels of said image". Insofar as the Gentile reference is concerned, these claims are allowable for substantially the same reasons given above.

The Sakuragi reference describes storing code data corresponding to characters input from the keyboard.

Col. 4:8-18. The Baisuck reference describes a Circuit Data Base composed of cells comprising reference to shapes, each shape represented as delimited strings of vertex coordinate points.

Col. 3:43-51. Neither Sakuragi or Baisuck, either separately or together in conjunction with Gentile, describe or even hint at the claimed invention. None of these references, separately or together show or even hint at compressing an image into a bitmap of boundaries of regions and one or more pointers to textures, where each region has one pointer to one texture.

Applicant therefore asks that claims 3, 4, 14, 16-18, 22-27, and 31-33 be allowed.

**3. Claim 28 is rejected under 35 U.S.C. 103 as being unpatentable over Gentile, 5,539,865, Sakuragi et al., 5,382,100, or Baisuck et al., 5,440,720, as applied to claims 3, 4, 14, 16-18, 22-27, and 31-33 above, and further in view of Murata et al., 5,539,865.**

**For claim 28, . . . .**

Claims 28-30 are allowable for at least the reasons given above for the claims from which they depend.

Applicant asks that all claims now be allowed.

Apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date:

1/13/98



Wayne P. Sobon  
Reg. No. 32,438

Fish & Richardson P.C.  
2200 Sand Hill Road, Suite 100  
Menlo Park, CA 94025

Telephone: 650/322-5070  
Facsimile: 650/854-0875

82828.p11